Remarks

Reconsideration of this application is respectfully requested.

In the Office Action dated November 22, 2005, the Examiner objected to the specification because the term CDA did not appear to be defined. Applicant has amended paragraphs [0018] and [0020] to spell out the term CDA (clean dry air). One of ordinary skill in the semiconductor art would have been quite familiar with this acronym at the time the present application was filed. For example, U.S. Patent Application Publication No. 2004/0000328 (published January 1, 2004) uses this term (See abstract). Also see http://www.engineering-ed.org/Semiconductor/smt_links.htm (copyright 1996) in the Glossary wherein it defines CDA as, "Clean Dry Air"" No new matter has been added. Withdrawal of the objection to the specification is requested.

In the Office Action dated November 22, 2005, claims 6 – 10, 13, and 14 were rejected under 35 U.S.C. § 103(a) in view of U.S. Patent No. 6,048,798, issued to Gadgil et al. ("Gadgil") and claims 11 – 19 were rejected under 35 U.S.C. § 103(a) in view of a proposed combination of Gadgil with U.S. Patent No. 6,367,410, issued to Leahey et al. ("Leahey").

Applicant has cancelled claims 6 – 8, rendering moot the Examiner's rejection of those claims. Additionally, the preambles of claims 10 – 14 have been amended to place them in better conformity with the terminology used in base Claim 9, from which they depend. Furthermore, claims 9 – 10, and 12 – 15 have been amended. Support for the amendments can

be found throughout the specification and drawings, and more particularly at paragraphs [0008] – [0010] and [0020] – [0022] of the amended specification. No new matter has been added.

Independent claim 9 is directed towards a method of semiconductor processing that provides a "continuously variable clean dry air (CDA) flow," "proportionally adjusting the continuously variable CDA flow" and "maintaining a predefined temperature inside a dome of the semiconductor processor." Independent claim 15 is directed towards a method of semiconductor processing that provides "continuously varying a clean dry air (CDA) flow responsive to temperatures changes in the domed process chamber, such that a dome temperature is stabilized in accordance with a preset temperature during a semiconductor manufacturing process." Contrary to the Examiner's assertions, neither Gadgil alone, nor in combination with Leahey, discloses or suggests these features of claims 9 and 15, nor would it have motivated one of ordinary skill in the art of semiconductor processing at the time Applicant's invention was made to modify the teachings of the references to achieve such a method.

Gadgil, at most, describes a method for cooling a gas distribution plate with the use of helium gas in order to keep the temperature of the plate below some arbitrary temperature, defined by Gadgil as the "threshold temperature." Nowhere within the four corners of the Gadgil reference is there any disclosure, explicit or implicit, of a continuously variable flow of CDA used to maintain a predefined (or preset) temperature in the dome of a semiconductor processor. Similarly, Leahey , at most, describes an apparatus, specifically a closed-loop dome temperature control apparatus, used to control the temperature of a dome of a semiconductor wafer processing system. Nowhere within the four corners of the Leahey reference is there any

disclosure, explicit or implicit, of a continuously variable flow of CDA used to maintain a predefined (or preset) temperature in the dome of a semiconductor processor. There is no indication that Leahy uses anything other than an on-off flow. Furthermore, combination of the two references fails to disclose the method of Applicant's claims 9 or 15; specifically, a method of semiconductor processing that provides a continuously variable flow of clean dry air (CDA) to a dome of the semiconductor processor, wherein the continuously variable CDA flow is utilized to maintaining a predefined (or preset) temperature in the dome.

In order to establish a prima facie case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings, and the prior art reference (or references when combined) must teach or suggest all of the claim limitations. MPEP § 2142. The Examiner has not satisfied these requirements, and therefore has failed to establish a prima facie case of obviousness.

The Action alleges on page 3 that Gadgil discloses, "that the flow rate of the gas (although He is disclosed it was pointed out in col. 6, lines 10 – 11 that air may be the gas) can be controlled in order to control the temperature (col. 5, lines 57 – 64)." This allegation takes out of context two separate statements made in Gadgil and seeks to impermissibly combine them.

The full quote concerning the use of a flow rate controlled gas, from column 5, lines 57 – 64, reads:

> Temperature control of the gas distribution plate can be monitored by suitable temperature controlling apparatus which monitors the temperature of the inner surface directly or indirectly such as by one or more temperature sensors mounted in the gas distribution plate and/or the window. The temperature controlling apparatus could control the flow rate of the He to provide adequate heat transfer between the window and the gas distribution plate. (emphasis added).

The full quote concerning the use of air as a gas from column 6, lines 6 - 12, reads:

> Due to the passage of heat transfer gas through the gap between the window and the gas distribution plate, the heat which is received by the gas distribution plate 22 due to ion bombardment from the plasma can be conducted to the window 20 and removed by radiation and/or passing a cooling fluid, e.g., air, in heat transfer contact with the antenna 18 and/or window 20. (emphasis added).

Applicant directs Examiner's attention to Figure 1 of Gadgil wherein it can be clearly observed that the use of flow controlled He gas, as disclosed by Gadgil, is used to provide heat transfer for the vacuum processing chamber 10; specifically, the gas distribution plate 22. Conversely, the disclosure of the use of air as is limited to passing it over the window 20 and antenna 18. There is no disclosure, nor is there any suggestion, in Gadgil that the air which is passed over the antenna and/or window is flow-controlled in any way. Gadgil discloses the use of flow-controlled He gas within the interior of a vacuum processing chamber to remove heat from a gas distribution plate, and separately discloses the use of passing air across the antenna and/or window of a vacuum processing chamber. Importantly, Gadgil discloses at column 5, lines 10 – 15, that the use of air is merely a supplementary or additional cooling tool. Therefore, it is not accurate to state that Gadgil discloses the use of a controlled air flow. Furthermore, Applicant's methods of claim 9 and 15 are directed to a "continuously variable CDA flow" which is distinct and different from any disclosures made in Gadgil. Thus, the Examiner has not shown that Gadgil teaches or suggests all of the claim limitations found in Applicant's independent claims 9 and 15, and as such, the Examiner has not established a prima facie case of obviousness required by MPEP § 2142.

The combination of Gadgil and Leahey also fails to teach or suggest all of the claim limitations present in Applicant's independent claims. Gadgil, as has already been stated, fails to teach or suggest a continuously variable CDA flow. Leahey also fails to disclose or suggest this. Leahey, as shown in Fig. 1, is directed towards a closed-loop thermal control apparatus which is mounted over the dome of a semiconductor wafer processing system. Leahey discloses the use of a lamp array and coolant to regulate the temperature of the air in the closed-loop system; however, Leahey discloses the use of a fan to propel the air through the system at high-speed only. The Examiner's attention is directed to column 4, lines 42 – 65 of Leahey, wherein it is disclosed that the air is passed through the fan at a rate sufficient to create a "cyclone or vortex." Leahey discloses the rate of air flow to be "approximately 315 cfm," and indicates that by minimizing backward pressure, the fan could produce a flow rate of "710 cfm." Clearly, Leahey discloses only one method of operation, which is using a fan to generate a flow rate sufficient to create a cyclone or vortex. Nowhere in the four corners of Leahey is there the teaching or suggestion of controlling or varying the flow rate. This is in contrast to Applicant's claimed method of a "continuously variable CDA flow." Thus, the Examiner has not shown that Gadgil, when combined with Leahey, teaches or suggests all of the claim limitations found in Applicant's independent claims 9 and 15, and as such, the Examiner has not established a prima facie case of obviousness required by MPEP § 2142.

Claims 10 – 14 and 16 – 19 are dependent upon independent claims 9 and 15 respectively, and thus should be allowable at least through dependency.

In view of the foregoing amendments and remarks, Applicant submits that this application is in condition for allowance. Early notification to that effect is respectfully requested.

The Assistant Commissioner for Patents is hereby authorized to charge any additional fees or credit any excess payment that may be associated with this communication to deposit account **04-1679.**

Respectfully submitted,

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